RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR RESOURCES
AIR POLLUTION CONTROL REGULATION NO. 32

CONTROL OF VOLATILE ORGANIC COMPOUNDS FROM MARINE VESSEL LOADING OPERATIONS

32. Control of Volatile Organic Compounds from Marine Vessel Loading Operations

32.1 Definitions

As used in these regulations, the following terms shall, where the context permits, be construed as follows:

32.1.1 "Marine Vessel" means any tugboat, tanker, freighter, passenger ship, barge or other boat, ship or water craft except those used primarily for recreation.

32.1.2 "Volatile Organic Compound" and "VOC" means any organic compound which participates in atmospheric photochemical reactions. This includes any organic compound other than the following compounds:

(a) acetone
(b) CFC-11 (trichlorofluoromethane)
(c) CFC-12 (dichlorodifluoromethane)
(d) CFC-113 (1,1,1-trichloro 2,2,2-trifluoroethane)
(e) CFC-114 (1,2-dichloro 1,1,2,2-tetrafluoroethane)
(f) CFC-115 (chloropentafluoroethane)
(g) ethane
(h) HCFC-22 (chlorodifluoromethane)
(i) HCFC-123 (1,1,1-trifluoro 2,2-dichloroethane)
(j) HCFC-124 (2-chloro 1,1,1,2-tetrafluoroethane)
(k) HCFC-141b (1,1-dichloro 1-fluoroethane)
(l) HCFC-142b (1-chloro 1,1-difluoroethane)
(m) HFC-23 (trifluoromethane)
(n) HCFC-125 (pentafluoroethane)
(o) HCFC-134 (1,1,2,2-tetrafluoroethane)
(p) HFC-134a (1,1,1,2-tetrafluoroethane)

(q) HCFC-143a (1,1,1-trifluoroethane)
(r) HCFC-152a (1,1-difluoroethane)
(s) methane
(t) methyl chloroform (1,1,1-trichloroethane)
(u) methylene chloride (dichloromethane)
(v) parachlorobenzotrifluoride (PCBTF)
(w) volatile methyl siloxanes (VMS)
(x) The perfluorocarbon compounds which fall into these classes:

(1) cyclic, branched or linear, completely fluorinated alkanes;
(2) cyclic, branched or linear, completely fluorinated ethers with no unsaturations;
(3) cyclic, branched or linear, completely fluorinated tertiary amines with no unsaturations; and
(4) sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine

These compounds have been determined to have negligible photochemical reactivity. For purposes of determining compliance with emission limits, VOC will be measured by the approved test methods. Where such a method also inadvertently measures compounds with negligible photochemical reactivity, as defined above, an owner or operator may exclude these negligible photochemical reactive compounds when determining compliance with an emissions standard.

32.1.3 "Halogenated Organic Compound" and "HOC" means the following compounds:

(a) CFC-11 (trichlorofluoromethane)
(b) CFC-12 (dichlorodifluoromethane)
(c) CFC-113 (1,1,1-trichloro 2,2,2-trifluoroethane)
(d) CFC-114 (1,2-dichloro 1,1,2,2-tetrafluoroethane)
(e) CFC-115 (chloropentafluoroethane)
(f) HCFC-22 (chlorodifluoromethane)
(g) HCFC-123 (1,1,1-trifluoro 2,2-dichloroethane)
(h) HCFC-124 (2-chloro 1,1,1,2-tetrafluoroethane)
(i) HCFC-141b (1,1-dichloro 1-fluoroethane)

(j) HCFC-142b (1-chloro 1,1-difluoroethane)
(k) methyl chloroform (1,1,1-trichloroethane)
(l) methylene chloride (dichloromethane)

32.1.4 "Combustion device" means emission control equipment used for combustion or destruction of organic vapors and includes, but is not limited to, thermal incinerators, catalytic incinerators, flares, boilers, and process heaters.

32.1.5 "Emission Control Equipment" means any equipment, machinery, apparatus, or device used to recover or reduce emissions of volatile organic compounds.

32.1.6 "Gasoline" means any petroleum distillate having a Reid vapor pressure of more than 4 psia as determined by ASTM Method D323. This term includes but is not limited to mixtures of alcohols and gasoline.

32.1.7 "Leak free" means the dripping of a liquid containing volatile organic compounds at a rate of four drops per minute or less; or an emission of gaseous volatile organic compounds which causes an appropriate analyzer sampling one centimeter or less from a source to register less than 10,000 ppm as methane.

32.1.8 "Loading Event" means an incident or occurrence beginning with the connecting of marine terminal storage tanks to a marine tank vessel by means of pipes or hoses followed by the transferring of organic liquid cargo and ending with the disconnecting of the pipes or hoses; or any means of admitting any other liquid into a marine vessel's cargo tanks. Loading events shall include only such incidents which occur when a marine tank vessel is moored to a dock or other permanent stationary structure.

32.1.9 "Marine Tank Vessel" means any marine vessel which is specially constructed or converted to carry liquid bulk cargo in tanks.

32.1.10 "Marine Terminal" means any facility, equipment, or structure constructed to load or unload organic liquid bulk cargo into or out of marine tank vessels.

32.1.11 "Organic Liquid" means, for the purposes of this regulation,

gasoline, gasoline blending stocks, aviation gas and aviation fuel which contains gasoline, such as JP-4 type.

32.1.12 "Recovery device" means emission control equipment used to remove organic vapors and recover liquids or chemicals and includes, but is not limited to, absorbers, carbon adsorbers, and condensers.

32.1.13 "Segregated ballasting operations" means the loading of ballast water into tanks on a marine vessel if those tanks are used only for ballasting and never hold organic liquid.

32.1.14 "Vapor tight marine vessel" means a marine vessel which has been demonstrated within the previous 12 months to have no leaks. A marine vessel loaded at negative pressure is assumed to be vapor tight for the purposes of this regulation. Discharges from pressure/vacuum relief valves on cargo tank vent lines are not considered leaks for the purposes of this definition.

32.2 Applicability

32.2.1 The provisions of this regulation apply to any loading event in which organic liquid is loaded into marine tank vessels and to loading events in which any liquid is loaded into a marine vessel's cargo tanks if the most recent cargo held in those tanks was an organic liquid. This regulation does not apply to segregated ballasting operations.

32.2.2

32.3 Emission Limitations

32.3.1 A loading event shall not be conducted unless one of the following conditions is met:

(a) Volatile organic compounds emissions do not exceed 5.7 grams per cubic meter (2 pounds per 1000 barrels) of liquid loaded into the marine tank vessel, or

(b) The emissions of volatile organic compounds are reduced by at least 95 percent by weight from uncontrolled conditions if a recovery device is used and by at least 98 percent by weight from uncontrolled

conditions if a combustion device is used.

32.3.2 All of a marine terminal's hatches, pressure relief valves, connections, gauging ports and vents which are used in connection with a loading event shall be leak free.

32.3.3 A loading event shall not be conducted unless the receiving marine vessel is vapor tight. To determine whether a marine vessel is vapor tight, the owner or operator of the marine terminal must follow the following procedures for each loading event, with the exception of loading events performed at a negative pressure:

(a) Obtain a copy of the record of the most recent pressure test or leak test on the receiving marine vessel. The record must contain all information specified in Subsection 32.4.2.

(b) If, according to the records obtained pursuant to the requirements of Subsection 32.3.3 (a), the marine vessel passed the most recent pressure or leak test and that test was performed within the previous 12 month period, the vessel shall be considered vapor tight.

(c) If, according to the records obtained pursuant to the requirements of Subsection 32.3.3 (a), the marine vessel failed its most recent leak or pressure test, no loading event shall be conducted unless the operator of the marine vessel provides written documentation that all leaks have been repaired subsequent to the failed test. Any loading event involving a marine vessel that has been repaired subsequent to failing its most recent leak or pressure test must be conducted in conjunction with the performance of a leak test, as specified in Subsection 32.3.3 (d).

(d) If, according to the records obtained pursuant to the requirements of Subsection 32.2.3 (a), the marine vessel has not passed a leak or pressure test within the previous 12 month period, a leak test of the vessel shall be performed during the loading event. No loading events shall be performed if the vessel failed its most recent leak test or pressure test and does not provide the

owner or operator of the marine terminal with documentation that shows that all leaks subsequently have been repaired, as specified in Subsection 32.3.3 (c).

(e) A person testing a marine vessel to determine whether that vessel is vapor tight shall provide the operator of the marine vessel and the owner or operator of the marine terminal with documentation of the test which includes all information specified in Subsection 32.4.2.

32.4 Recordkeeping and Recording

32.4.1 The owner or operator of a marine terminal loading facility shall record the following information about each loading event and maintain this information at the facility for a period of five years:

(a) The location of the loading event,

(b) The company responsible for conducting the loading event,

(c) The date and time at which the marine vessel arrived and departed from the location of the loading event,

(d) The name, registry of vessels and name and address of the legal owner of the marine tank vessel participating in the loading event,

(e) The prior cargo carried by the receiving marine tank vessel,

(f) The type and amount of liquid cargo loaded into the receiving marine tank vessel,

(g) The condition of the receiving tanks prior to being loaded (i.e. cleaned, crude oil, washed, gas freed, etc.),

(h) The amount of ballast water added to a marine vessel's tanks, except for ballast water used in segregated ballasting operations, and

(i) A description of procedures used to prevent venting.

32.4.2 The owner or operator of a marine terminal shall maintain at the facility for a period of five years a record of the most recent leak test or pressure test conducted on a marine vessel prior to or in conjunction with each loading event. Such records shall be made available to the Division or to EPA on request and shall include the following information:

(a) Test method;

(b) Marine vessel owner and address;

(c) Marine vessel identification number;

(d) Date and location of test;

(e) Tester's name and signature;

(f) Witnessing inspector's name, signature and affiliation; and

(g) Test results.

32.4.3 The owner or operator of a marine terminal at which loading events subject to this regulation are conducted shall collect and record the following information and maintain the information at the facility for a period of 5 years. These records shall be made available to the Division and EPA upon request.

(a) The date and results of each emission test performed at the facility as required in Subsection 32.5.1 and of each leak free determination performed as required in Subsection 32.5.2;

(b) A daily log of operating time for any capture system, emission control equipment, and monitoring equipment;

(c) A maintenance log for any capture system, emission control equipment, and monitoring equipment detailing all routine and non-routine maintenance performed, including dates and duration of any outages;

(d) A maintenance log for all of the marine terminal's hatches, pressure relief valves, connections, gauging ports and vents which are used in connection with loading events, including dates when leaks were repaired;

(e) The dates of any loading events which bypassed the emission control equipment or which were performed when the marine terminal was not leak free;

(f) For thermal incinerators:

(1) All 3-hour periods of operation in which the average combustion temperature was more than 28°C (50°F) below the average combustion temperature during the most recent performance test that demonstrated that the facility was in compliance, and

(2) The operating temperature.

(g) For catalytic incinerators:

(1) All periods where the temperature increase across the catalyst bed is less than 80% of the temperature increase recorded during the most recent performance test that demonstrated that the facility was in compliance, and

(2) The inlet and outlet temperatures and temperature rise across the catalyst bed.

(h) For carbon adsorbers:

(1) All 3-hour periods of operation during which the average VOC concentration or reading of organics in the exhaust gases is more than 20 percent greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of the recovery efficiency of the carbon adsorber that demonstrated that the facility was in compliance, and

(2) The pressure drop across the adsorber and the hydrocarbon levels for breakthrough.

32.5 Compliance Demonstration/Testing

32.5.1 Compliance with the emission limitations of Subsection 32.3.1 shall be demonstrated upon start up of the emission control equipment and thereafter upon request of the Director in accordance with 40 CFR 60, Appendix A, Method 25 as amended or another EPA approved method which has been accepted by the Director. This test shall be conducted so that at least 50% of the total liquid loaded is included.

32.5.2 Leak free determinations at marine terminals shall be made upon start up of the emission control equipment and monthly thereafter. Gaseous leaks shall be measured in accordance with EPA Reference Method 21 or another method which has been accepted by the Director and by EPA.

32.5.3 Any leak test or pressure test used to demonstrate that a marine vessel is vapor tight shall utilize a method which has been accepted by the Director and by EPA.

32.5.4 The owner or operator of a marine terminal shall notify the Director of the date of any test demonstrating the control efficiency of emission control equipment at least 90 days in advance of that date. If required by the Division, a sampling protocol shall be submitted at least 60 days in advance of the testing date. Testing results shall be submitted to the Division within 30 days of completion of the test.

32.6 Compliance Schedules

32.6.1 Any marine terminal at which a loading event subject to this regulation is conducted shall be in compliance with the provisions of Sections 32.3 and 32.4 on and after January 1, 1996.

32.6.2 The owner or operator of any marine terminal at which loading events subject to this regulation are conducted shall, by July 30, 1994, submit to the Director a compliance plan which describes the steps and schedule that will be taken to achieve compliance

with this regulation.

32.6.3 Any compliance plan which includes equipment replacement or modification or installation of emission control equipment shall provide for periodic increments of progress, including but not limited to:

(a) Date by which engineering plans and permit applications will be submitted,

(b) Date by which equipment will be ordered,

(c) Installation date after confirmation of order by the manufacturer, and

(d) Date by which the applicable regulatory emission limitations will be achieved after equipment is in satisfactory operation.

32.6.4 No compliance schedule submitted to satisfy the requirements of this section shall allow a facility to exceed any applicable emission limitations including but not limited to:

(a) Best Available Control Technology determinations, or

(b) Lowest Achievable Emissions Rate determinations, or

(c) Federal New Source Performance Standards codified at 40 CFR Part 60, or National Emission Standards for Hazardous Air Pollutants, codified at 40 CFR Part 61 or Part 63, or

(d) Any other condition or standard that is specifically required by the Clean Air Act (as amended) for new or modified sources.

32.6.5 Compliance schedules submitted in accordance with the requirements of this section are subject to review and approval by the Director.